

REMARKS/ARGUMENTS

These remarks are made in response to the Office Action of November 16, 2009 (Office Action). As this response is timely filed within the 3-month shortened statutory period, no fee is believed due. However, the Examiner is expressly authorized to charge any deficiencies to Deposit Account No. 14-1437.

Claims Rejections – 35 USC § 103

Claims 1, 7, and 13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Published Patent Application 2003/0189603 to Goyal, *et al.* (hereinafter Goyal) in view of U.S. Patent 7,246,062 to Knott, *et al.* (hereinafter Knott). Claims 19-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Goyal in view of Knott, and in further view of U.S. Patent 6,393,389 to Chanod, *et al.* (hereinafter Chanod).

Although Applicants respectfully disagree with the rejections, Applicants have amended Claims 1, 7, and 13 in an effort to even more clearly define the present invention and to facilitate prosecution of the instant application. The claim amendments are fully supported throughout the Specification and no new matter has been introduced.

Aspects of Applicants' Invention

It may be helpful to reiterate certain aspects of Applicants' invention prior to addressing the cited references. One embodiment of the invention, as typified by Claim 1, is a computer-implemented method of efficiently presenting correction options in a speech-based user interface.

The method can include receiving at least one speech information input; processing the at least one speech information input and determining a confidence score for the at least one speech information input by a speech recognition device; and assigning a HIGH, MEDIUM, or LOW confidence level to the at least one speech

information input based upon the confidence score.

The method also can include if the confidence level is LOW, performing an immediate confirmation step by speech prompting the user to confirm the speech information input until the confidence level of the speech information input is HIGH; if the confidence level is MEDIUM or HIGH, placing the at least one speech information input in batch data; and performing a batch confirmation step after all speech information inputs have been received and assigned a confidence level by speech prompting the user to confirm all speech information inputs.

See, e.g., Specification, paragraphs [0019] to [0023]; see also Figs. 1-2.

The Claims Define Over The Prior Art

The present invention provides a method and a system for efficiently presenting correction options. The method may be separated into two separate confirmation methods: an immediate confirmation for low confidence level results and a batch confirmation for medium and high confidence level results.

The following example provides the manner in which the method of the present invention efficiently presents correction options. A user is attempting to access a flight information system having a speech user interface. The interface application needs to collect certain information, such as the airline, the departure and arrival cities, the departure time, and the date. For each information input collected, the present invention will classify the confidence level as HIGH, MEDIUM, or LOW, based upon scores by a recognition engine. If the confidence level is LOW, then an immediate confirmation method is used to verify the information. If the confidence level is HIGH or MEDIUM, then these items will be confirmed in a batch confirmation method, wherein the options will be sorted based on their probability of selection by the user, as determined by the confidence scores.

Computer: Welcome to XYZ Automated Travel System.
Please select flight status, available flights, or exit.
Caller: Flight status.
Computer: Which airline?
Caller: American Airlines. (HIGH)
Computer: Departure City?
Caller: Miami. (HIGH)
Computer: Approximate departure time?
Caller: 10:00 a.m. (MEDIUM)
Computer: Arrival City?
Caller: Newark. (MEDIUM)
Computer: Which day?
Caller: May 30th. (LOW)

At this point, the system will perform an immediate confirmation as the confidence level for the last response was LOW.

Computer: Was that May 13th?
Caller: No, May 30th. (HIGH)

Now that all of the information has been collected, the system will perform a batch confirmation step to confirm the information.

Computer: Thank you. Let's review: American Airlines departing from Miami International Airport at approximately 10:00 a.m. and arriving in New York LaGuardia airport on May 30th. Is that correct?
Caller: No.

At this point, the system will present the correction prompt. As the date was confirmed before, it does not need to be included in the options, although it may be included with the other HIGH confidence level options. There are two MEDIUM confidence level options and two remaining options with a HIGH confidence level. Using the method of the present invention, the system will sort the correction options to present to the caller, from MEDIUM to HIGH, as follows: departure time, arrival city, airline, and departure city. The (...) indicates a short pause to "invite" the caller to barge-in:

Computer: What needs to change? ...The departure time...arrival city...
Caller: (barge-in) Arrival city.
Computer: Change anything else?
Caller: No.
Computer: What is the arrival city? ...New York LaGuardia...Newark
New Jersey...
Caller: Newark New Jersey.

Goyal discloses a system and method for organizing and prioritizing recognized text, and more particularly, a method and system for categorizing recognized text according to confidence levels in the correctness of the recognized text. The system and method may categorize recognized text into two or more different confidence levels. A user interface can display recognized text based upon the confidence level assigned to that text, thereby drawing a user's attention to that text for which the recognition process has a low confidence in its correctness estimate. The user interface may also allow a user to correct erroneously recognized text with different techniques, according to the level of confidence that the recognition process has in the correctness of the text. See the Abstract.

Clearly, the subject matter of Goyal, which concerns categorizing and displaying recognized text according to confidence levels, is totally different from the subject matter of the present invention, which concerns efficiently presenting confirmation/correction options in a speech-based user interface.

First of all, it is noted that the present invention does not display the recognized text for correction. Rather, in the present invention both the immediate confirmation and the batch confirmation methods take place in a speech-based user interface. In other words, in the present invention any confirmation or correction is carried out through speech prompts, not through correction of the displayed recognized text.

Further, Goyal does not disclose the concept of determining whether a confirmation step should be presented immediately or in batch based on confidence levels. Therefore, Goyal at least does not disclose if the confidence level is LOW,

performing an immediate confirmation step by speech prompting the user to confirm the speech information input until the confidence level of the speech information input is HIGH; and if the confidence level is MEDIUM or HIGH, placing the at least one information input in batch data and performing a batch confirmation step after all information inputs have been received and assigned a confidence level by speech prompting the user to confirm all speech information inputs, as recited in Claims 1, 7, and 13 of the instant application.

Paragraph [0032] of Goyal reads:

[0032] The display interface 209 then displays recognized text according to the confidence level that has been assigned to that text. Thus, recognized text with a high confidence level may be displayed with a regular font. This allows a user to quickly read through this text, without studying it in detail, or even to ignore it altogether. Recognized text with a medium confidence level can then be displayed with highlighting, coloring, underlining or some other indication that will draw the user's attention to this text. This allows a user to quickly identify and correct the text that is more likely to be incorrect.

Clearly, paragraph [0032] of Goyal describes displaying the recognized text differently based on different confidence levels in order to draw the user's attention to text that is more likely to be incorrect. It is not clear how this has anything to do with if the confidence level is MEDIUM or HIGH, placing the at least one information input in batch data and performing a batch confirmation step after all information inputs have been received and assigned a confidence level by speech prompting the user to confirm all speech information inputs, as recited in Claims 1, 7, and 13 of the instant application.

The other cited references do not cure the deficiencies of Goyal as discussed above.

It was asserted in the Office Action that Knott teaches a voice recognition system that determines high, medium or low confidence levels for the recognized speech and if the confidence level is low, the system immediately prompts the user to re-state the utterance (col. 2, line 53 to col. 3, line 12 and col. 3, lines 36-59).

Knott describes in the above cited passages that high and medium confidence utterance recognitions result in implicit or explicit confirmations that help prevent errors in those instances where utterance recognition has a high or medium probability of being correct but some chance of error remains, and a low confidence utterance recognition with a higher probability of error results in a concise interrogative prompt that succinctly requests the user to re-state the utterance.

Clearly, Knott concerns situation dependent utterance verification by relating confirmation to utterance determination confidence levels. In Knott, a high confidence level results in implicit confirmation, a medium confidence level results in explicit confirmation, and a low confidence level results in requesting the user to repeat the utterance. This is totally different from the present invention in which an immediate confirmation is performed for low confidence level results and a batch confirmation is performed for medium and high confidence level results. Further, it is noted that repeating the utterance is not the same as confirmation because confirmation does not necessarily require repetition.

Accordingly, the cited references, alone or in combination, fail to disclose or suggest each and every element of Claims 1, 7, and 13. Applicants therefore respectfully submit that Claims 1, 7, and 13 define over the prior art. Furthermore, as each of the remaining claims depends from Claims 1, 7, or 13 while reciting additional features, Applicants further respectfully submit that the remaining claims likewise define over the prior art.

Applicants thus respectfully request that the claim rejections under 35 U.S.C. § 103 be withdrawn.

CONCLUSION

Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. Applicants request that the Examiner call the

undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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